

Insert Gas Main Flexible Liners



Partner Reported Opportunities (PROs)
for Reducing Methane Emissions

PRO Fact Sheet No. 403

Applicable sector(s):

Production Processing Transmission and Distribution

Partners reporting this PRO: Consolidate Edison Company of New York

Other related PROs: Use of Clock Spring® Repair

Compressors/Engines
Dehydrators
Pipelines
Pneumatics/Controls
Tanks
Valves
Wells
Other

Technology/Practice Overview

Description

Cast iron and unprotected steel piping in underground gas distribution systems have the highest leakage factors of all distribution piping materials. In contrast, plastic pipe has the lowest leakage factor. Where replacement with plastic pipe is not feasible or permitted (e.g., bridge crossings), partners report using flexible plastic insert liners.

Thin-walled plastic liners take advantage of the support offered by the parent piping material and provide the low leakage factors of plastic piping. Plastic liners can be pulled through long lengths of buried piping and bonded at joints to minimize leakage.

Operating Requirements

Plastic liners have pressure and temperature limits based on wall thickness.

Applicability

This practice is applicable to cast iron and unprotected steel transmission and distribution pipelines.

Methane Emissions Reductions

Methane emissions reductions come from lower leakage rates associated with plastic liners as compared to the typical leakage through joints in cast iron pipe and external corrosion in unprotected steel piping. Gas Technology Institute (GTI) leakage factors for plastic replacing cast iron or unprotected steel in mains and service lines can be used to estimate methane savings.

Methane Savings: 225 Mcf per year

Costs

Capital Costs (including installation)

<\$1,000 \$1,000 – \$10,000 >\$10,000

Operating and Maintenance Costs (annual)

<\$100 \$100-\$1,000 >\$1,000

Payback (Years)

0–1 1–3 3–10 >10

Benefits

Reducing methane emissions was an associated benefit of the project.

Economic Analysis

Basis for Costs and Savings

Reported methane emissions reductions of 225 Mcf per year were associated with retrofitting one mile of cast iron main and one mile of unprotected steel service lines.

Discussion

This technology pays back immediately due to the lower installation cost. The costs of inserting plastic liners are considerably lower than the costs of excavation and installation of protected steel or plastic pipe.